What is claimed is:

1. A circuit system for wireless communications, the system transmitting and receiving radio frequency (RF) signals via a first and second antenna, comprising:

a printed circuit board having a predetermined area devoid of a solder mask;

an antenna switch, mounted on the printed circuit board within the predetermined area, having at least two input ports and at least two output ports, enabling connection of any of the input ports to either of the output ports, where the output ports are coupled to the first and the second antennas, respectively;

a first filter, mounted on the printed circuit board within the predetermined area and coupled to one of the input ports of the antenna switch, blocking unwanted frequency components in an RF receive signal from either of the antennas;

a first matching network transforming the RF receive signal from single-ended to differential;

a converter converting a baseband transmit signal from digital to analog;

a transceiver down-converting the RF receive signal supplied by the first matching network to a baseband receive signal, and up-converting the baseband transmit signal passing through the converter to an RF transmit signal;

a second filter coupled between the converter and the transceiver, matching an output impedance of the

converter to an input impedance of the transceiver;

a second matching network transforming the RF transmit signal from differential to single-ended; and

a power amplifier, mounted on the printed circuit board within the predetermined area and coupled between the second matching network and the other input port of the antenna switch, boosting the RF transmit signal from the second matching network, whereby the RF transmit signal undergoing the boost is transferred to either antenna through the antenna switch;

wherein the first matching network is coupled between the first filter and the transceiver, and the second matching network is coupled between the transceiver and the power amplifier;

wherein each matching network, having a common node and a pair of differential nodes, includes a first capacitor connected between the common node and a first node of the differential nodes, a first inductor connected between the first node of the differential nodes and ground, a second inductor connected between the common node and a second node of the differential nodes, a second capacitor connected between the second node of the differential nodes and ground, and an adjustable inductor connected across the differential nodes and in parallel with the transceiver.

2. The circuit system of claim 1 wherein the transceiver conforms to the IEEE 802.11a standard, which down-converts the RF receive signal in a band around a carrier frequency of 5 GHz to the baseband receive signal and up-converts the baseband transmit signal to the RF transmit signal in the band around the carrier frequency of 5 GHz.

3. The circuit system of claim 2 wherein the first filter is a bandpass filter selecting a frequency band around 5 GHz.

4. The circuit system of claim 1 wherein the transceiver conforms to the IEEE 802.11b standard, which down-converts the RF receive signal in a band around a carrier frequency of 2.4 GHz to the baseband receive signal and up-converts the baseband transmit signal to the RF transmit signal in the band around the carrier frequency of 2.4 GHz.

5. The circuit system of claim 4 wherein the first filter is a bandpass filter selecting a frequency band around 2.4 GHz.

6. The circuit system of claim 1 wherein the second filter operating at a baseband frequency has a low pass filter characteristic.

7. The circuit system of claim 1 wherein the printed circuit board, including four layers of copper and three layers of FR4 substrate, has a thickness of about 40 mils.

8. The circuit system of claim 1 wherein signal traces, formed on the printed circuit board and coupled among the antenna switch, the first filter, the power amplifier, the first and the second matching networks, and the transceiver, range in width from 15 mils to 18 mils, and wherein the spacing between the signal traces and a ground plane is at least 15 mils.

9. The circuit system of claim 1 wherein the transceiver is capable of operating in dual frequency bands and conforms to both IEEE 802.11a and 802.11b standards.

10. A circuit system for wireless communications, comprising:

a printed circuit board having a predetermined area devoid of a solder mask;

a filter, mounted on the printed circuit board within the predetermined area, blocking unwanted frequency components in an RF receive signal;

a first matching network transforming the RF receive signal from single-ended to differential;

a transceiver down-converting the RF receive signal supplied by the first matching network to a baseband receive signal, and up-converting a baseband transmit signal generated by a baseband processor to an RF transmit signal;

a second matching network transforming the RF transmit signal from differential to single-ended; and

a power amplifier, mounted on the printed circuit board within the predetermined area and coupled to the

second matching network, boosting the RF transmit signal from the second matching network;

wherein the first matching network is coupled between the first filter and the transceiver, and the second matching network is coupled between the transceiver and the power amplifier;

wherein each matching network, having a common node and a pair of differential nodes, includes a first capacitor connected between the common node and a first node of the differential nodes, a first inductor connected between the first node of the differential nodes and ground, a second inductor connected between the common node and a second node of the differential nodes, a second capacitor connected between the second node of the differential nodes and ground, and an adjustable inductor connected across the differential nodes and in parallel with the transceiver.

11. The circuit system of claim 10 wherein the transceiver conforms to the IEEE 802.11a standard, which down-converts the RF receive signal in a band around a carrier frequency of 5 GHz to the baseband receive signal and up-converts the baseband transmit signal to the RF transmit signal in the band around the carrier frequency of 5 GHz.

12. The circuit system of claim 11 wherein the first filter is a bandpass filter selecting a frequency band around 5 GHz.

13. The circuit system of claim 10 wherein the transceiver conforms to the IEEE 802.11b standard, which down-converts the RF receive signal in a band around a carrier frequency of 2.4 GHz to the baseband receive signal and up-converts the baseband transmit signal to the RF transmit signal in the band around the carrier frequency of 2.4 GHz.

14. The circuit system of claim 13 wherein the first filter is a bandpass filter selecting a frequency band around 2.4 GHz.

15. The circuit system of claim 10 wherein the printed circuit board, including four layers of copper and three layers of FR4 substrate, has a thickness of about 40 mils.

16. The circuit system of claim 10 wherein signal traces, formed on the printed circuit board and coupled among the filter, the power amplifier, the first and the second matching networks, and the transceiver, range in width from 15 mils to 18 mils, and wherein the spacing between the signal traces and a ground plane is at least 15 mils.

17. The circuit system of claim 10 wherein the transceiver is capable of operating in dual frequency bands and conforms to both IEEE 802.11a and 802.11b standards.

18. A radio frequency (RF) front-end circuit system for transmitting and receiving RF signals via a first and second antenna, comprising:

a printed circuit board having a predetermined area devoid of a solder mask;

an antenna switch, mounted on the printed circuit board within the predetermined area, having at least two input ports and at least two output ports, enabling connection of any of the input ports to either of the output ports, where the output ports are coupled to the first and the second antennas, respectively;

a filter, mounted on the printed circuit board within the predetermined area and coupled to one of the input ports of the antenna switch, blocking unwanted frequency components in an RF receive signal from either of the antennas; and

a power amplifier, mounted on the printed circuit board within the predetermined area and coupled to the other input port of the antenna switch, boosting a RF transmit signal to be transferred to either antenna through the antenna switch.

19. The RF front-end circuit system of claim 18 wherein the printed circuit board, including four layers of copper and three layers of FR4 substrate, has a thickness of about 40 mils.

20. The RF front-end circuit system of claim 18 wherein signal traces, formed on the printed circuit board and coupled among the antenna switch, the filter, and the power amplifier, range in width from 15 mils to 18 mils, and wherein the spacing between the signal traces and a ground plane is at least 15 mils.